United States Environmental Protection Agency

Economic Analysis and Risk Management for TSCA Workplan Chemicals

David Widawsky, Ph.D., Director
Chemistry, Economics, and Sustainable Strategies Division, OPPT

February 23, 2017

ECONOMICS AND LCSA: OVERVIEW

What has changed?

What hasn't changed?

What are the needs for moving forward?

Continuing steps and external engagement

WHAT HAS CHANGED FOR ECONOMICS?

- Risk evaluation without consideration of "costs or other non-risk factors."

- "*If the Administrator determines that a chemical substance presents an unreasonable risk of injury to health or the environment…*" then risk management is mandated through rulemaking, where "*the Administrator shall consider and publish a statement based on reasonably available information with respect to…the reasonably ascertainable economic consequences of the rule…*"

WHAT ELSE HAS CHANGED?

- Assessment of alternatives is now explicit: *"…the Administrator shall consider, to the extent practicable, whether technically and economically feasible alternatives….will be reasonably available as a substitute…"*
- Cost effectiveness is now explicit: *"the Administrator shall consider…based on reasonably available information…the cost effectiveness of proposed regulatory action, and the one or more primary alternative regulatory actions considered."*

BUT, WAIT, THERE'S MORE…

- PBTs: risk evaluation may not be required for certain PBTs, but move directly to address risk through reducing exposure, "to the extent practicable."
- Final rulemaking will be done in accordance with requirements to consider reasonably ascertainable economic consequences (per previous slides).
- Economic analyses of benefits for an exposure-oriented rulemaking is currently under discussion.

OKAY, WHAT HASN'T CHANGED?

- Mandate to conduct economic analyses per the guidances provided in OMB Circular A-4, Regulatory Analysis (2003)
- EPA's Guidelines for Preparing Economic Analyses (2010)
- EO13563 and EO12866
- Economic analysis (under Section 6) primarily based on expected changes (reductions) in risk, and costs/benefits of achieving expected risk reductions.

WHAT NEEDS ARE FORESEEN?

- Costs: granular data on conditions of use for both chemical substances being evaluated, and alternatives to those chemicals.
- Costs: market adaptation processes that mitigate ex ante cost estimates (ref.: Pizer, Morgenstern, et al.), including innovation
- Costs: Individual vs. broader pecuniary costs
- Benefits: data on toxicology of frank effects that induce behavioral responses
- Benefits: Monetization of avoiding morbidity effects, reproductive effects, etc.
- Latency, inter-generational,….

EXAMPLE 1: TCE AS DEGREASER

- **Trichloroethylene options**: ban on vapor and commercial/consumer aerosol degreasing and dry cleaning spot cleaning, PPE requirements
- **Monetized benefits**: reduced risk of liver cancer, kidney cancer, non-Hodgkins lymphoma (both fatal and non-fatal cancer risks)
- **Non-monetized, unquantified benefits**: reduced non-cancer kidney and liver effects, adverse fetal development, non-cancer effects on nervous system, immune system, and reproductive system.
- **Possible countervailing risk via alternatives**: zero benefits for other halogenated solvents as best way to address countervailing risk, given available information
- **Costs**: Alternative chemicals (drop-in, non-drop-in), PPE, machine reconfiguration or process change, managing waste,…

EXAMPLE 2: PAINT STRIPPERS

- **Methylene Chloride (MeCl) and N-Methylpyrrolidone (NMP)** – widely used in paint stripping, several risk management options
- **Monetized benefits**: MeCl: neurotoxicity death, cancer (liver, lung), benign tumors, cost-of-illness
- **Non-monetized, unquantified benefits**: MeCl - liver effects, kidney effects, non-fatal neuro-impairment (confusion, incapacitation); NMP - adverse fetal development/loss.
- **Possible countervailing risk via alternatives**: not quantified in benefits analysis.
- **Break-even analysis**: NMP - potential number of cases that may be avoided
- **Costs**: Alternative chemicals, PPE, timing of paint stripping operations, …

MOVING FORWARD

- Collecting detailed use data – internal efforts, external submissions
- Quantifying and monetizing health/eco effects – internal efforts, external research, collaborative research
- Method development – e.g., willingness-to-pay, cost-of-illness, productivity loss,…

EPA United States Environmental Protection Agency

Thank you!

To learn more about EPA's Chemical Management & Programs:

http://www.epa.gov/oppt